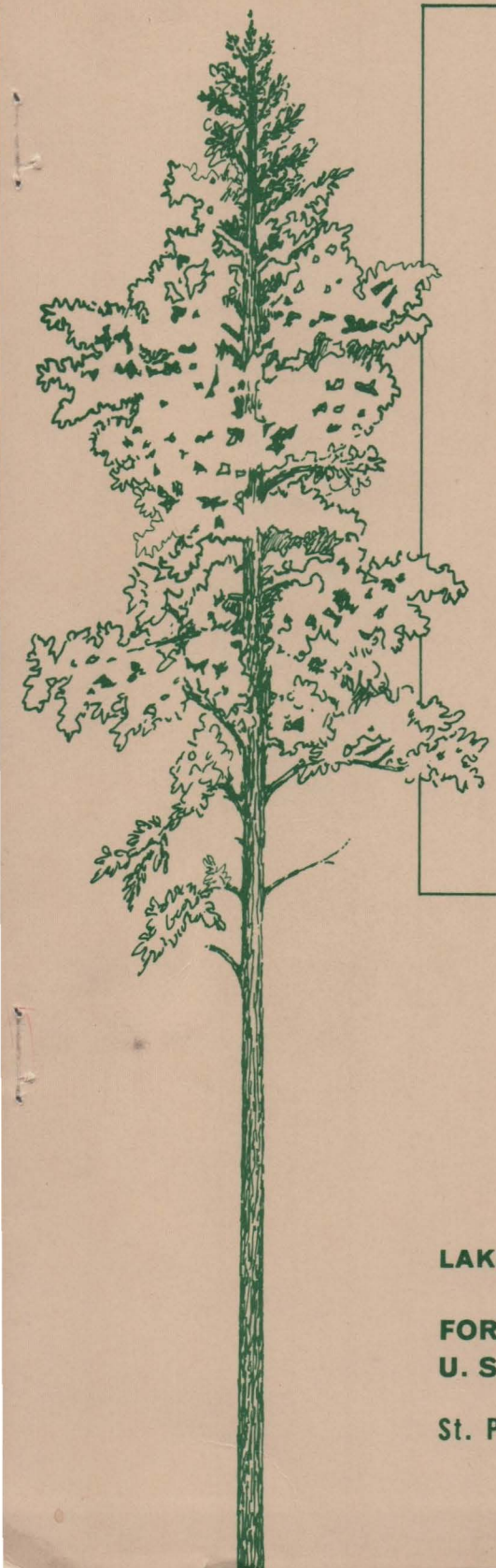

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OFFICE REPORT

THE JACK PINE BUDWORM SITUATION ON THE CHIPPEWA NATIONAL FOREST

1961

by

H. O. Batzer and J. L. Bean

NOT FOR PUBLICATION

LAKE STATES FOREST EXPERIMENT STATION

FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

St. Paul 1, Minnesota

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BACKGROUND

The area bounded roughly by U.S.2 on the south, Cass Lake on the west, the Mississippi River on the north, and Lake Winnibigoshish on the east was surveyed from the air for jack pine budworm defoliation on August 9. The purpose of the survey was to further delineate the boundaries of the infestation as reported by the District Rangers of the Cass Lake and Bena Districts and to determine the number of acres involved by intensity classes.

The flight was made using a locally chartered Cessna 172. Observations were recorded by two observers using an operations recorder. Flight lines were 1 mile apart and the strip observed was 10 chains wide, making a $12\frac{1}{2}$ percent sample of the area. Because light defoliation was barely visible from the air, the defoliation classes set up were none to light, moderate, and heavy. An additional key was used to record noticeable larch sawfly defoliation within the area surveyed.

Jack pine sawfly defoliation was not discernible from the air, nor was the amount of top killing caused by previous jack pine budworm defoliation sufficiently abundant to permit its observation accurately.

After the survey defoliation data was transferred to the base, plotting map and points for egg mass collections were selected to give an estimate of expected infestation for 1962.

FINDINGS

Defoliation Survey

The accompanying map shows the zones in which jack pine stands that were moderately or heavily defoliated by the budworm predominate. This area agrees approximately with the infestation

area reported earlier by the District Ranger except for a zone of light or no defoliation lying to the northeast of Grass Lake, and an area of moderate and heavy defoliation lying roughly between and to the north of the areas sprayed in 1959 and 1960. Moderate and heavy defoliation were combined on this map and comprise 4892 acres. Acreages by defoliation classes were as follows:

Jack pine budworm defoliation, Chippewa National Forest, Cass Lake and Bena Ranger Districts

None-light	Moderate	Heavy	Noticeable larch sawfly defoliation on tamarack
acres			
8,150	3,784	1,108	880

In addition approximately 100 acres of jack pine were moderately defoliated on the Cutfoot Sioux Ranger District located along the Max Road in T. 147 N., R. 27 W., Sec. 11.

Egg Mass Survey

Branch samples were collected during the week of August 21 from 25 locations on the Cass Lake and Bena Ranger Districts. Branches were taken to the laboratory and examined for budworm eggs. Counts were adjusted for egg parasitism and a prediction was made for the 1962 infestation. Locations predicted to be infested in 1962 may not necessarily be damaged because climatic factors, parasitism, or male cone crop failure could account for heavy mortality of the early instar larvae in the spring. No concentrations of jack pine sawfly defoliation were observed in the course of taking budworm egg samples. Sawfly eggs were not yet laid at that time and therefore no information for predicting next year's sawfly population is available.

A summary of the budworm egg survey is given below:

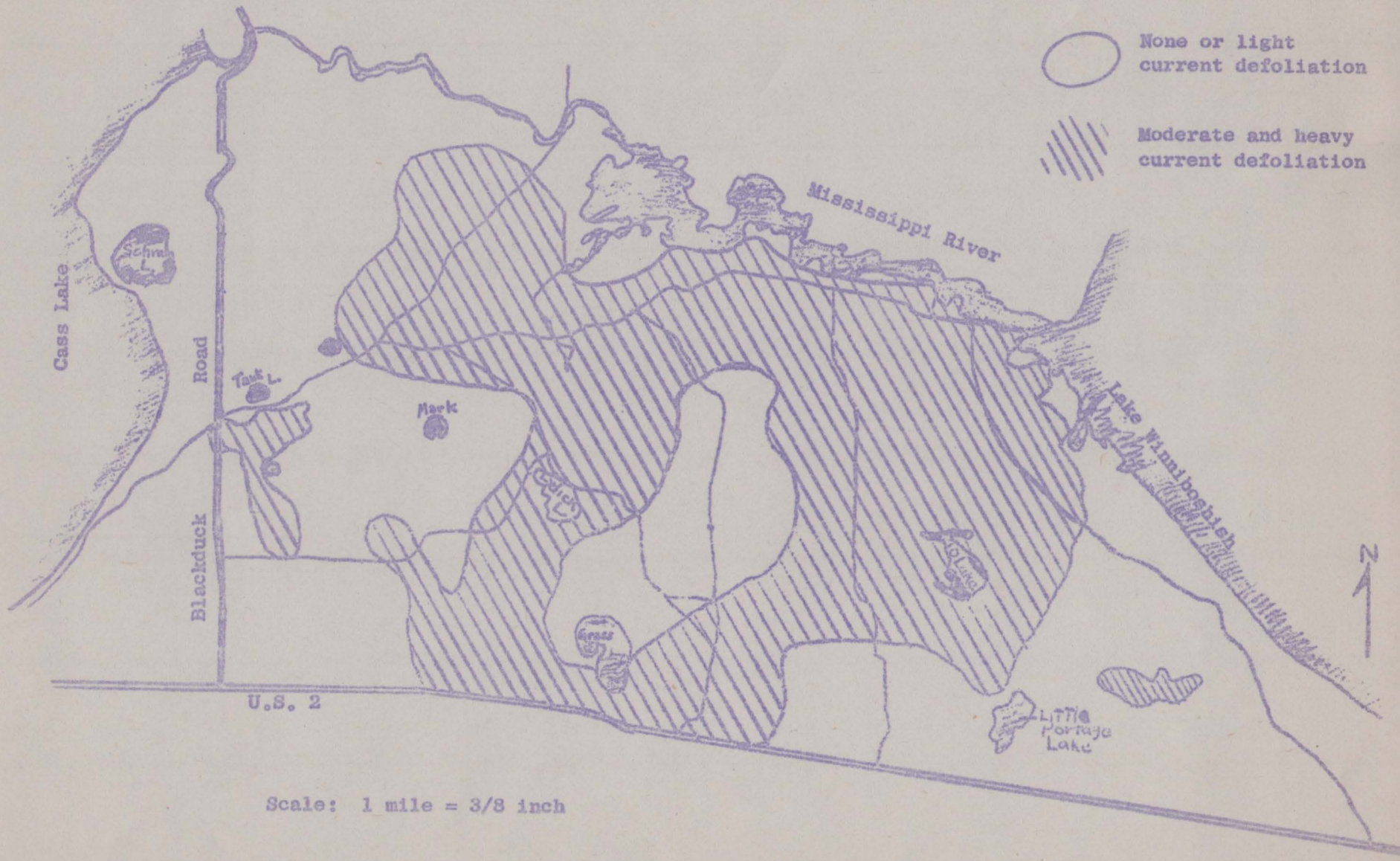
Description				No. egg masses per sample 1/	Percent egg parasitism	1961 defoliation	Predicted defoliation 1962
T.	R.	Sec.	¼				
145	28	18	SW	2	0	Moderate	Mod.-heavy
145	28	19	SE	0	-	Light	None-light
145	29	3	SE	6	10	Light	Heavy
		5	SW	0	-	Light	None-light
		11	SW	4	0	Moderate	Heavy
		14	SE	0	-	Moderate	None-light
		14	SW	0	-	Light	None-light
		17	NE	2	15	Moderate	Mod.-heavy
		19	SE	0	-	Light	None-light
		20	NW	2	100	Heavy	Light
		23	NE	0	-	Light	None-light
145	30	9	SE	1	80	Light	Light
		11	SW	0	-	Moderate	None-light
		12	NW	0	-	Light	None-light
		13	SE	5	20	Heavy	Heavy
		24	SW	0	-	Moderate	None-light
146	29	28	SW	3	0	Heavy	Heavy
		31	SW	0	-	Heavy	None-light
		33	SW	0	-	Moderate	None-light
146	30	22	NW	0	-	Light	None-light
		23	SE	0	-	Light	None-light
		25	NW	2	10	Light	Moderate
		26	SW	0	-	Heavy	None-light
		28	SE	0	-	Moderate	None-light
		35	SW	3	5	Heavy	Heavy

1/ Each sample consisted of 2-to 15-inch branch tips taken at mid-crown from each of three codominant trees.

Recommendations

Those stands in the vicinity of the above locations that have a predicted heavy defoliation for 1962 and have experienced moderate to heavy defoliation in 1961 should be set up for accelerated harvesting. If this is not possible and if economic considerations warrant, they could be set up for possible aerial spraying in 1962. However, an examination for damaging populations should be made early in June to determine the need for control. Climatic factors, parasitism, or male cone crop failure may reduce the population sufficiently so that control measures may be unnecessary.

1961 Jack Pine Budworm Defoliation
Chippewa National Forest



Scale: 1 mile = 3/8 inch